Management of Remediation Wastes Pursuant to RCRA Corrective Action

BACKGROUND: On October 7, 1999, EPA announced its decision to withdraw most of the provisions of the July 27, 1990, Notice of Proposed Rulemaking (NPRM) for corrective action for solid waste management units (SWMUs) at hazardous waste management facilities. Commonly known as the Subpart S proposed rule, this rule would have created a comprehensive set of requirements under 40 CFR Part 264, Subpart S of the Resource Conservation and Recovery Act (RCRA) regulations, for conducting corrective action at RCRA facilities. To implement RCRA corrective action, EPA is deferring instead to: 1) its February 16, 1993, final rule on Corrective Action Management Units (CAMUs) and Temporary Units (TUs) (58 FR 8658); 2) its May 1, 1996, Advance Notice of Proposed Rulemaking (ANPR) on RCRA corrective action (61 FR 19432); 3) its November 30, 1998, final rule on Hazardous Remediation Waste Management Requirements (HWIR-Media) (63 FR 65874); and 4) various policy and guidance documents that the Agency has issued since the 1990 Subpart S proposal. In addition, EPA may issue one or more final rules pertaining to targeted jurisdictional issues, such as the definition of the term "facility" for purposes of RCRA corrective action, and supplemental guidance documents in a number of areas pertaining to RCRA corrective action.

The RCRA corrective action program was mandated by the 1984 Hazardous and Solid Waste Amendments (HSWA). Congress directed EPA to require "corrective action for all releases of hazardous waste or constituents from any solid waste management unit..." [HSWA 3004(u)] and, where necessary, "that corrective action be taken beyond the facility property boundary..." [HSWA 3004(v)]. One of the most significant impediments to progress in the RCRA corrective action program has been the high cost of remediation waste management. Consequently, EPA has devoted much attention to management of remediation wastes and instituted a number of changes to the corrective action program that are designed to tailor management requirements to the risks posed by the wastes. This Information Brief is one of a series on RCRA corrective action. It has been revised from a previous Information Brief (EH-231-029/0295, February 1995).

STATUTE: RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA).

REGULATIONS: Proposed 40 CFR Part 264, Subpart S ["Corrective Action for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities", 55 FR 30798, July 27, 1990], withdrawn on October 7, 1999 (64 FR 54604); "Corrective Action Management Units and Temporary Units: Corrective Action Provisions Under Subtitle C" (58 FR 8658, February 16, 1993); Advanced Notice of Proposed Rulemaking (ANPR) on "Corrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities" (61 FR 19432, May 1, 1996); "Hazardous Waste Identification Rule for Contaminated Media" (HWIR-Media) (63 FR 65874); "Land Disposal Restrictions Phase IV Final Rule" (63 FR 28556, May 26 1998).

REFERENCES:

1. "Applicability of LDR to RCRA/CERCLA Groundwater Treatment Reinjections,"DOE EH-231 Memorandum, March 24, 1990.

2. "RCRA Corrective Action Program Guide (Interim)," U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Division (EH-413), Guidance Manual, DOE/EH-0323, May 1993.

3. "Corrective Action Management Units and Temporary Units," U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Division (EH-413), RCRA Information Brief, EH-231-022/0793, March 1994 (currently under revision).

4. "Management of Remediation Waste Under RCRA," U.S. Environmental Protection Agency, Memorandum to RCRA/CERCLA Senior Policy Managers and Regional Counsels, EPA530-F-98-026, October 1998.

5. "Management of Remediation Waste Under RCRA, " DOE EH-413 Memorandum and Information Bulletin, December 20,1999.

Are materials that are generated during a corrective action defined as solid wastes under RCRA?

Materials that are generated during a RCRA corrective action may include disposed wastes, contaminated media (e.g., soil, groundwater), and contaminated debris. The act of removing waste, debris or contaminated media from SWMUs or from areas that have been impacted from SWMU releases, for subsequent treatment, storage, or disposal generates solid waste under RCRA.

Are solid wastes that are generated during a corrective action defined as hazardous wastes under RCRA?

As with any other solid waste, remediation wastes must be evaluated, pursuant to 40 CFR 262.11 to determine if they are hazardous wastes. Some solid wastes that are generated during RCRA corrective actions may also be hazardous waste. Solid wastes are hazardous wastes if they satisfy one of two criteria. First, solid wastes are hazardous wastes if they meet a listing description, are mixed with or derived from a listed hazardous waste [40 CFR 261.3(a)(2) and (c), respectively]. The listings include wastes from non-specific sources (40 CFR 261.31, F wastes), wastes from specific sources (40 CFR 261.32, K wastes), and discarded commercial chemicals (40 CFR 261.33, P and U wastes). Second, if solid wastes exhibit one or more of the four hazardous waste characteristics, they are hazardous wastes. The characteristics of hazardous wastes are ignitability, corrosivity, reactivity, and toxicity (40 CFR 261.21 - 24).

While solid waste streams may be classified as hazardous by these listings or characteristics, wastes released into the environment need not meet these specific criteria in order to trigger RCRA corrective action. They only need to meet the broader statutory definition of hazardous waste contained in RCRA Section 1004(5) (see 55 FR 30809 et seq.). RCRA 1004(5) defines hazardous wastes as "solid wastes that cause or contribute to death or illness or pose a present or potential threat to human health or the environment." A solid waste need not be listed or exhibit one of the four hazardous characteristics to meet this definition.

What wastes are RCRA remediation wastes?

The term "remediation waste" is used by EPA to denote solid and hazardous waste generated during cleanup activities. The definition of remediation waste was initially established in the CAMU and TU final rule (58 FR 8658, February 16, 1993) and codified at 40 CFR 260.10. Under this definition, remediation wastes were defined as "solid and hazardous wastes that are managed for the purpose of implementing corrective action." This definition was redefined by the HWIR-Media final rule (63 FR 65937, November 30, 1998) as "all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous waste or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup." This change in the definition clarified that remediation wastes need not be generated from corrective actions pursuant to RCRA or from cleanup solely at RCRA treatment, storage and disposal facilities (TSDFs), in order to qualify for management in a CAMU or TU. It also clarified that media and debris are included under the definition of remediation waste only if they contain listed hazardous waste or themselves exhibit a hazardous characteristic and are managed for implementing cleanup. In addition, media must be actively managed as part of a cleanup activity in order to be considered remediation wastes.

How should remediation wastes generated as part of cleanup activities be managed?

There are several options for management of remediation wastes. First, nonhazardous remediation waste may be managed in accordance with State-implemented RCRA Subtitle D requirements. EPA recently published a comprehensive "Guide for Industrial Waste Management" (EPA 530-R-99-001, Draft, May 1999) with a request for comments (64 FR 31576, June 11, 1999), that may be reviewed for information on waste management alternatives for nonhazardous wastes. It should be noted, however, that DOE has reviewed this guide and submitted substantive comments to EPA (EH-413 Letter to EPA,12/10/99, "Comments on Voluntary Guide for Industrial Waste Management"). The comment package can be downloaded form the EH-41 website under "DOE Comments" at http://www.eh.doe.gov/oepa.

Hazardous remediation wastes, must be managed in accordance with applicable Federal and State hazardous waste management standards. As referred to above, one option for management of hazardous remediation wastes is management in a CAMU or TU.[1] Placement of remediation wastes into or within a CAMU does not constitute land disposal of hazardous waste, and therefore does not trigger the land disposal restrictions [40 CFR 264.552(a)(1)] or minimum technology requirements for land-based units [40 CFR 264.552(a)(2)]. If remediation wastes are not managed in CAMUs or TUs, and are not otherwise managed in-situ, they are subject to LDR and MTR requirements. CAMUs and TUs were the only portions of the original Subpart S

[1] Not all States have adopted the CAMU/TU rule into their hazardous waste programs.

proposed rule that have been finalized (58 FR 8658, February 16, 1993). In addition, the definition of CAMU was also modified by the 1998 HWIR-Media Final Rule (63 FR 65874, November 30, 1998). The HWIR-Media final rule modified significantly the manner in which hazardous remediation wastes are managed. The following two questions discuss CAMUs and TUs. Then, changes instituted by the HWIR-Media final rule are examined.

Does the designation of a CAMU affect the management of remediation wastes?

The designation of a CAMU significantly affects the management of remediation wastes. The Land Disposal Restrictions (LDRs) are among the most complex regulations potentially applicable to hazardous remediation waste generated as a result of RCRA corrective action. The LDRs require that wastes meet treatment standards prior to land disposal. Treatment standards may be numerical standards based on best demonstrated available technology (BDAT) or specified methods of treatment. EPA recognized that the LDRs, which were designed to regulate newly generated waste and not cleanup wastes, may create cleanup disincentives. CAMUs and TUs were designed to provide an alternative approach for management of hazardous remediation wastes that was fully protective to human health and the environment.

CAMUs were initially established as part of the February 16, 1993, final rule on CAMUs and TUs (58 FR 8658) as "an area within a facility that is designated by the Regional Administrator or the authorized State for the purpose of managing remediation wastes generated during corrective action" (defined under 40 CFR 260.10). The definition of CAMU was revised in the November 30, 1998, HWIR-Media final rule as "an area within a facility that is used only for managing remediation wastes for implementing corrective action or cleanup at the facility." EPA wanted to clarify that a CAMU can be designated at a remediation-only facility[2] that operates under a remedial action plan (RAP) or other permit, even though such a facility is not subject to the corrective action provisions of 40 CFR 264.101 or RCRA Section 3008(h). EPA also wanted to clarify that CAMUs are not restricted to wastes generated solely through specific RCRA regulatory mechanisms, or to clean-up wastes generated solely at RCRA treatment, storage, or disposal facilities. Accordingly, the HWIR-Media final regulations changed the definition of CAMU.

How do TUs affect the management of remediation wastes?

Many cleanup activities will involve the short-term management (i.e., storage or treatment) of remediation waste. For example, wastes may be placed in tanks or containers prior to consolidation for treatment. Normally, RCRA regulations would require the owner or operator to comply with all requirements of 40 CFR 264 and obtain a full operating permit for storage and/or treatment of hazardous waste in such units (unless conducted in generator 90-day accumulation tanks or containers). The designation of the unit as a TU provides the flexibility for short-term management of remediation waste in tanks or container storage units without the burden of compliance with the full 40 CFR 264 standards and without permit requirements. A TU is a new class of unit created through the February 1993 CAMU and TU rule to facilitate cleanups under RCRA corrective action. The rule provides flexibility in complying with requirements such as design, operation, and closure requirements, so that only those standards required to protect human health and the environment during the operating life of the unit would be required. TUs have a maximum permissible life of not more than 2 years; after this time an owner or operator must submit a permit application and comply with the full 40 CFR 264 requirements (see 40 CFR 264.553).

How did the HWIR-Media final rule affect management of remediation wastes?

The final HWIR-Media rule significantly affected the manner in which remediation wastes can be managed. The final rule did not withdraw the regulations which define and govern CAMUs, as was proposed (61 FR 18780, April 29, 1996). Also, EPA finalized the land disposal restrictions (LDR) treatment standards for hazardous contaminated soil, which were included in the HWIR-Media proposal, as part of the LDR Phase IV final rule (63 FR 28604, May 26, 1998). The HWIR-Media final rule has the following elements that affected management of remediation wastes.

- The existing definitions of "corrective action management unit (CAMU)" and "remediation waste" in 40 CFR 260.10 were modified (as discussed above) to clarify that remediation waste need not be generated by corrective actions conducted pursuant to RCRA in order to qualify for management in a CAMU or temporary unit.

- A new type of RCRA permit, a Remedial Action Plan (RAP), with a streamlined permitting process is established for governing treatment, storage, and disposal of hazardous remediation wastes. A RAP does not document and enforce site-specific alternative

[2] EPA uses the term "remediation-only facility" to refer to facilities that require RCRA permits solely because they manage hazardous remediation wastes (63 FR 65880).

management requirements for hazardous contaminated media because the HWIR-Media final rule does not provide for such media to be exempted from RCRA Subtitle C, as was proposed. Instead, a RAP offers a streamlined permitting process for treating, storing, and disposing of hazardous remediation wastes, including hazardous contaminated media, in accordance with RCRA Subtitle C.

- A definition for the term "remediation waste management site" is added to 40 CFR 260.10. A remediation waste management site is defined as "a facility where an owner or operator is or will be treating, storing or disposing of hazardous remediation waste." [63 FR 65937]. This definition allows wastes managed at off-site locations to qualify as remediation waste, even if they are removed from their site of origin. The HWIR-Media final regulations governing remediation waste management sites differ from those governing other hazardous waste management facilities in the following three respects [63 FR 65882]:
  - Remediation waste management sites can be permitted using either the new RAP, or a traditional RCRA permit.
  - If a remediation waste management site is located at a remediation-only facility, facility-wide corrective action is not required, whether the remediation waste management site is permitted using a traditional RCRA permit or a RAP.
  - Remediation waste management sites must comply with performance standards that address general facility requirements, preparedness and prevention, and contingency planning and emergency procedures. They are not compelled to comply with 40 CFR 264, Subparts B, C, and D, which govern the same activities at other hazardous waste management facilities.

- A new type of hazardous waste management unit, the staging pile, is created for accumulation and temporary storage of solid, non-flowing hazardous remediation waste. A definition for the term "staging pile" is also added to 40 CFR 260.10. The HWIR-Media final rule defines a staging pile as "an accumulation of solid, non-flowing remediation waste (as defined in [40 CFR] §260.10) that is not a containment building and is used only during remedial operations for temporary storage at a facility" [63 FR 65939, codifying 40 CFR 264.554(a)]. A staging pile must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the staging pile originate.

EH-413 has prepared a regulatory bullet summarizing key elements of the HWIR-Media final rule and it may be downloaded from the EH-41 website under "Policy and Guidance" at http://www.eh.doe.gov/oepa.

How does the "contained-in" policy affect waste management requirements?

The "contained-in" policy established that contaminated media (e.g., soil or ground water) that contain a listed hazardous waste must be managed as a hazardous waste. Until the medium no longer "contains" a hazardous waste (to be determined by the regulator), it must be managed according to applicable hazardous waste management standards. Under this policy, soil or ground water deemed "clean" by the regulator may be returned to the ground without triggering RCRA Subtitle C requirements. However, full RCRA Subtitle C requirements are applicable until the contamination is removed from the medium.

This policy, applicable to remediation wastes, was first outlined in the EPA Memorandum "RCRA Regulatory Status of Contaminated Groundwater" (November 13, 1986). It has been updated many times since, most recently in the proposed HWIR-Media rule (61 FR 18795, April 29, 1996). In addition, EPA's Office of Solid Waste (OSW) discussed the applicability of the contained-in policy in its "Memorandum on Management of Remediation Waste Under RCRA", EPA530-F-98-026, pp. 9-10, October 1998.

EH-413 has issued a guidance document which in addition to the above EPA memorandum, compiles and presents existing guidance on RCRA policies and regulations that most often affect remediation waste management and presents additional EPA policies and regulations that may be of significant interest and offer additional programmatic flexibility to Environmental Restoration Project Managers (ERPMs) in scoping, planning, conducting, or overseeing remediation waste management activities. The memo may be downloaded from the EH-41 website at http://www.eh.doe.gov/oepa.

While the contained-in policy has been codified for contaminated debris (51 FR 37225, August 18, 1992), it was not finalized as part of the final HWIR-Media rule for contaminated media. According to the debris rule, debris (including debris generated as a result of the performance of corrective action) that no longer "contains" a listed hazardous waste is excluded from RCRA Subtitle C regulation as long as the debris does not exhibit a characteristic of hazardous waste. EPA or the authorized State determines on a case-by-case basis, the levels of hazardous constituents indicating that debris no longer contains a listed waste [40 CFR 261.3(f)(2)]. EPA's finalization of LDR treatment standards for hazardous

contaminated soil as part of the LDR Phase IV final rule (63 FR 28604, May 26, 1998) may influence the establishment of contained-in levels. In addition, EPA's anticipated HWIR for process waste may also influence the establishment of contained-in levels. The HWIR for process waste was re-proposed by EPA on November 19, 1999 (64 FR 63382-63461).

How would the presence of a mixed waste affect corrective action waste management requirements?

Under the Federal Facility Compliance Act (FFCAct) [P.L.102-386], mixed wastes are wastes that contain both hazardous waste (under Section 1004 of the Solid Waste Disposal Act) and source, special nuclear, or by-product material subject to the Atomic Energy Act (AEA) of 1954. These wastes are subject to the requirements of both acts, pursuant to DOE's May 1, 1987, interpretive rulemaking under Section 161 of the AEA. The hazardous waste component of mixed waste is subject to RCRA requirements, while the radioactive portion is subject to AEA requirements. From the regulatory perspective, therefore, the presence of a mixed waste at a RCRA corrective action site does not affect waste management requirements under RCRA; the same RCRA requirements apply whether or not the hazardous waste is a component of mixed waste (see 51 FR 24504 et seq.; July 3, 1986). From a practical stand-point, the presence of mixed waste at a RCRA corrective action site does affect waste management requirements for a number of reasons, including (1) worker safety (e.g., protection from radiation exposure) during remediation efforts and (2) the need to identify appropriate remedial technologies. Furthermore, the FFCAct also required DOE to develop mixed waste treatment capacity and technologies. Since mixed wastes are likely to be generated by DOE facilities undertaking corrective action, Site Treatment Plans, prepared in accordance with the FFCAct's requirements, must consider the need to treat these wastes (see 58 FR 17875 et seq.; April 6, 1993).

Questions of policy or questions requiring policy decisions will not be dealt with in EH-413 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the material covered in this Information Brief to:

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